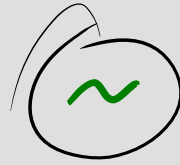


$$x \wedge y \equiv (x \mid y) \& \sim(x \& y)$$

$$x \& y$$

$$x \mid y$$

$$x \wedge y$$



$$x \ll s$$

$$x \gg s$$

$$\begin{array}{r} \sim 00111010 \\ \hline 11000101 \end{array}$$

0xb

$$\begin{array}{r} 10110101 \\ \wedge 00010111 \\ \hline 10100010 \end{array}$$

$$11 \quad 00001011 \ll 1$$

$$22 \quad 00010110$$

$$88 \quad 00001011 \ll 3$$

$$01011000$$

overflow

$$96 \quad \begin{array}{r} 00001011 \ll 5 \\ 01100000 \end{array}$$

70 >> 1

35

70 >> 3

01000110 >> 1

00100011

00001000

	0	8	7	5
8)	70		
		64		
		60		
		56		
		40		

-70 >> 1

10111010

-70
/ 188

Sign
-extend

1101101
00100011

0 → 93

1 → -35

- 1000

0111 +1

1000

0110100 $\ll 1$ $\leftarrow -76$
- 01001100 -152

-5 $\ll 2$ $\rightarrow -20$

$\overbrace{1111011}$

11101100 $\rightsquigarrow -20$

00010100

32-bit

8 bits
shift

31

100000

Coding Interviews

Sets - all letters in string (lower)

2^{26}
211

64M

a: true

b: false

c: F

d: f

e: f

f: f

g: F

h: F

i: F

j: F

k: F

l: F

"all"

set = 0 ... 00001000000000001

2^0

bad

set |= 1 << 1

bad

set |= 1 << 3

00 ... 010 ... 00011
1 1000

(set & (1 << 11))

(set >> 11) & 1

masking

001101011000

& 00001110000 ← mask

000010110000